

We claim
New Claims 1-7

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1. A piezoelectric actuator, having

- a piezoelectric element (2) for subjecting an actuating element (9) to a tensile force or compressive force, and having a compensating element (3; 20), the piezoelectric element (2) and the compensating element (3; 20) having essentially the same coefficients of temperature expansion, wherein

- the piezoelectric element (2) in its effective direction rests with one end against a fixation edge of a housing (6) via a spring (4) and with its other end on another fixation edge of the housing (6) via a pressure plate (8) and a prestressing spring (7),

- having a spring plate (5), which is disposed between the piezoelectric element (2) and the spring (4) and on which the compensating element (3; 20) is additionally disposed, which with its other end abuts the housing (6) firmly and is located essentially parallel to the piezoelectric element (2), and wherein

- the piezoelectric element (2) and the compensating

element (3; 20) comprise hollow cylinders, which are disposed about the axis of the actuating element (9).

2. The piezoelectric actuator of claim 1, characterized in that the piezoelectric element (2) comprises a multilayered structure of transversely disposed ceramic piezoelectric layers, which lengthen in the effective direction when an external electrical voltage is applied, and the compensating element (3) is constructed of ceramic.

3. The piezoelectric actuator of claim 1, characterized in that the piezoelectric element (2) comprises a multilayered structure of transversely disposed ceramic piezoelectric layers, which lengthen in the effective direction when an external electrical voltage is applied; and that the compensating element (20) comprises longitudinally disposed piezoelectric layers, which shorten in the effective direction when an external electrical voltage is applied.

4. The piezoelectric actuator of one of the foregoing claims, characterized in that the piezoelectric element (2) and the compensating element (3; 20) are constructed in bar form, with a round or rectangular cross section.

5. The piezoelectric actuator of one of the foregoing claims, characterized in that the end of piezoelectric element (2), by which it rests on the pressure plate (8), is disposed on the far side of the piezoelectric actuator (2) in terms of

the effective direction, so that the useful force (F_{useful}) of the piezoelectric actuator (1) is a tensile force.

6. The piezoelectric actuator of one of claims 1-4, characterized in that the end of piezoelectric element (2), by which it rests on the pressure plate (8), is disposed on the side of the piezoelectric actuator (2) located in the effective direction, so that the useful force (F_{useful}) of the piezoelectric actuator (1) ~~is~~ a compressive force.

7. The piezoelectric actuator of one of the foregoing claims, characterized in that a heat-conducting paste is disposed between the piezoelectric element (2) and the compensating element (3; 20).

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NO (Abstract)